

REMARKS/ARGUMENTS

Claims 1-15 are currently active in this case.

In the outstanding office action, claims 1, 3-5, 7, 10, 14, and 15 were rejected under 35 USC 102(b) as being anticipated by U.S. patent No. 5,817,992 to D'Antonio; and claims 2 and 13 were rejected under 35 USC 103(a) as being unpatentable over D'Antonio.

Applicants respectfully traverse both rejections.

Applicants acknowledge with appreciation the courtesy of an interview granted to Applicants' representative on September 19, 2006 at which time the D'Antonio reference was discussed. Arguments consistent with the arguments made below were presented during the interview.

The present invention is directed to a device for diffusing sound. By way of a non-limiting example, the device can be used in a home theatre. To that end, the device includes a membrane; a first substrate disposed on a first face of the membrane and having (i) a plurality of first absorptive regions and (ii) a plurality of first reflective regions formed as wells in a face of the first substrate, the first absorptive regions and the first reflective regions arranged in a pre-defined grid pattern; and a second substrate disposed on a second face of the membrane and having (i) a plurality of second absorptive regions and (ii) a plurality of second reflective regions formed as second wells in a face of the second substrate, the second absorptive regions and the second reflective regions arranged in the pre-defined grid pattern. The pre-defined grid pattern is arranged in accordance with a random binary sequence where a zero of the binary sequence is represented by a first absorptive region of the plurality of first absorptive regions and a one is represented by a first reflective region of the plurality of first reflective regions. The second substrate is disposed on the second face of the membrane 180 degrees out of phase relative to the first substrate.

The configuration of the device enables a construction having a depth less than 4 inches. Further, a sound wave directed to substrate perpendicular to the substrate will be effected in the following manner. First, there will be absorption due to the first substrate. Subsequently, there will be reflection due to the membrane at a frequency which is a function of the mass and stiffness of the membrane. Finally, a wave having a frequency below that frequency will pass through the membrane and further absorbed by the second substrate which is 180 degrees out of phase to the first substrate. See paragraphs [0006] and [0018] of the specification.

In contrast thereto, D'Antonio discloses a two-dimensional binary amplitude diffusor (hereinafter referred to as "the BAD panel"). The Bad panel has a plurality of deflective and absorptive regions arranged in a randomly generated grid pattern. However, D'Antonio fails to teach or suggest a diffusor device including first and second substrates with a membrane sandwiched there between, where the second substrate is disposed on the second face of the membrane 180 degrees out of phase relative to the first substrate.

The official action asserts that D'Antonio discloses the first and second substrates in Figures 7 and 8, respectively. Applicants respectfully traverse. Applicants point out that Figures 7 and 8 of D'Antonio illustrate distinct embodiments of the BAD panel. Figure 7 illustrates a normal BAD panel and Figure 8 illustrates an inverted BAD panel. D'Antonio does not, however, teach or suggest that the normal and inverted BAD panels should be combined in the manner recited by Applicants' claim 1.

D'Antonio discloses five embodiments for implementing the BAD panel. The first embodiment entitled "Flat Panels" is a series of reflective and absorptive rectangular patches. The second embodiment entitled "Flat Panels with Rear Bass Absorbing Membrane" is the flat panel described above attached to a diaphragmatic membrane. The third embodiment entitled "Variable Acoustic 'Triffusor'" is a three sided column including one BAD panel, a

reflective side and an absorptive side. The fourth embodiment entitled "Variable Acoustic Biffusor" is two-sided including a BAD panel and an absorptive side. Finally, the fifth embodiment entitled "Hanging Baffles" is two sided including two BAD surfaces with a baffle sandwiched there between.


Applicants submit that none of the five embodiments disclosed by D'Antonio teach or suggest the configuration defined by claim 1. At best, the fifth embodiment teaches applying one Bad surface to a side of a hanging baffle and applying a second Bad surface to a second side of the hanging baffle. However, the fifth embodiment does not teach or suggest that the two Bad surfaces are 180 degrees out of phase.

For the foregoing reasons, Applicants submit that D'Antonio fails to teach or suggest the subject matter recited by claim 1 or the claims that depend from claim 1. Claim 12 is the method analog of claim 1. Claim 12 and the claims that depend from claim 12 are believed to be allowable for at least the same reasons that claim 1 is believed to be allowable.

In view of the foregoing, no further issues are believed to be remaining. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

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